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# Facsimile Cover



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| Date: | May 27, 2010 | | |
| **TO:** | **Examiner Brian Q. Le** | | |
| **Fax Number:** | **571-273-7424** | Company: | U.S. Patent and Trademark Office, Art Unit 2624 |
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| Telephone: | 703 838 6529 | Our Reference: | 1011350-000284 |
| Sent By: | Geri Harrell | Number of Pages Including Cover: | 12 |

Message

Dear Examiner Le:

Per our telephone conversation today, attached is a copy of the revised proposed claim amendments.

Best regards,

Michael Britton

OK TO ENTER /BL/ 05/27/2010

**PROPOSED CLAIM AMENDMENTS**

1. (Currently Amended) An image processing device comprising:

a computing device having a processor, wherein the processor is programmed to function as:

a first color detection means for detecting colors of first image data by each processing unit, said first image data including data of a plurality of foreground objects and grouping all of the detected colors of the plurality of foreground objects in the first image data into groups, each group containing a grouping of approximately equal colors from the plurality of foreground objects;

a second color detection means for detecting colors of second image data that serves as the first image data's background by each processing unit, the second image data having a plurality of different colors; and

means for comparing, for each group, a representative color that is determined from the approximately equal colors of the group, to all the colors of the second image data that are adjacent to the first image data of the group and for specifying a single uniform adjusting color to be used for the group, that makes the first image data recognizable against all colors of the second image data that serve as the first image data's background;

wherein the computing device includes:

a first memory means for storing the colors of the first image data by each of the approximately equal colors; and

a second memory means for storing the colors of the second image data that serves as the first image data's background, said colors of which are correlated to each of the corresponding colors of the first image data that are stored in said first memory means; wherein

said comparing and specifying means includes:

an average color value calculating means for calculating an average value of all the colors of the second image data and for each group an average value of all the colors in each group as the representative color, the average value of all the colors of

the second image data being correlated to each of the representative colors of the first image data; and

an adjusting color calculating means for calculating said adjusting color for each of the colors of the first image data based on each of the representative colors of the first image data and the average color value of the second image data calculated in correspondence with each of the representative colors of the first image data.

2. (Currently Amended) An image processing device as claimed in claim 1, ~~further comprising~~ wherein the processor is programmed to function as:

an image synthesizing means for synthesizing the first image data converted into said adjusting color with said second image data.

3. (Original) An image processing device as claimed in claim 1, wherein said processing unit is a pixel.

4. (Canceled)

5. (Currently Amended) An image processing device as claimed in claim **[[4]]** 1, ~~further comprising~~ wherein the processor is programmed to function as:

a judging means for judging that colors of the first image data are approximately equal when a sum of squares of the differences of their coordinate values in a specified color system is less than a specified value.

6. (Currently Amended) An image processing device as claimed in claim **[[4]]** 1, wherein

said average color value calculating means calculates the average value of the coordinate values of the colors of the second image data in a specified color system.

7. (Previously Presented) An image processing device as claimed in claim 6, wherein

when a color of the first image data stored in said first memory means, an average color value of the second image data calculated in correspondence with the color of the first image data, and an adjusting color of the first image data are expressed in the L*a*b* color system as (Ln, an, bn), (LAn, aAn, bAn), and (Lnc, anc, bnc), as defined in the present specification;

said adjusting color calculating means calculates the (Lnc, anc, bnc) that maximizes the value J in the following formulas:

$J = (Lnc - LAn)^2 + (anc - aAn)^2 + (bnc - bAn)^2$

$H = bn/an$.

8. (Previously Presented) An image processing device as claimed in claim 6, wherein

when a color of the first image data stored in said first memory means, an average color value of the second image data calculated in correspondence with the color of the first image data, and an adjusting color of the first image data are expressed in the L*a*b* color system as (Ln, an, bn), (LAn, aAn, bAn), and (Lnc, anc, bnc), as defined herein the present specification;

said adjusting color calculating means sets

$anc = |an|$, when $aAn < 0$; $anc = -|an|$, when $aAn > 0$,

$bnc = |bn|$, when $bAn < 0$; $bnc = -|bn|$, when $bAn > 0$, and maximizes Lnc.

9. (Original) An image processing device as claimed in claim 1, wherein said first image data is an image data that represents character images.

10. (Currently Amended) An image processing device as claimed in claim 1 **[[4]]**, ~~further comprising~~ wherein the computing device includes:

a third memory means for storing said second image data.

11. (Currently Amended) An image processing device as claimed in claim 2, ~~further comprising~~ wherein the processor is programmed to function as:

a file preparing unit for preparing an electronic file based on the image data synthesized by said image synthesizing means.

12. (Original) An image processing device as claimed in claim 1, further comprising:

a scanner unit for obtaining said first image data and/or said second image data by means of reading a document.

13. (Original) An image processing device as claimed in claim 2, further comprising:

a printer unit for printing images on recording media based on the image data synthesized by said image synthesizing means.

14. (Currently Amended) A computer-readable non-transitory storage device containing a program product for image processing that causes a computer to execute a process comprising the steps of:

detecting colors of first image data by each processing unit, said first image data including data of a plurality of foreground objects;

grouping all of the detected colors of the plurality of foreground objects in the first image data into groups, each group containing a grouping of approximately equal colors from the plurality of foreground objects;

detecting colors of second image data that serves as the first image data's background by each processing unit, the second image data having a plurality of colors; ~~and~~

comparing, for each group, a representative color that is determined from the approximately equal colors of the group, to all the colors of the second image data that are adjacent to the first image data of the group and specifying a single uniform adjusting color to be used for the group, that makes the first image data recognizable

against all colors of the second image data that serve as the first image data's background;

storing the colors of the first image data by each of the approximately equal colors into a specified memory means; and

storing the colors of the second image data that serves as the first image data's background, said colors of which are correlated to each of the corresponding colors of the first image data that are stored in said specified memory means; wherein

said specifying a uniform adjusting color includes: calculating an average value of all the colors of the second image data and calculating an average value of all the colors in each group as the representative color, the average value of all the colors of the second image data being correlated to each of the representative colors of the first image data, and calculating said adjusting color for each of the representative colors of the first image data based on each of the colors of the first image data and the average color value of the second image data calculated in correspondence with each of the representative colors of the first image data.

15. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim 14, wherein said process further comprising the step of:

synthesizing the first image data converted into said adjusting color with said second image data.

16. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim 14, wherein

said processing unit is a pixel.

17. (Canceled)

18. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim ~~17~~ 14, wherein said process further comprises the step of:

judging that colors of the first image data are approximately equal when a sum of squares of the differences of their coordinate values in a specified color system is less than a specified value.

19. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim ~~17~~ 14, wherein

said step of calculating average value is for calculating the average value of the coordinate values of the colors of the second image data in a specified color system.

20. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim 19, wherein

when a color of the first image data stored in said specified memory means, an average color value of the second image data calculated in correspondence with the color of the first image data, and an adjusting color of the first image data are expressed in the L*a*b* color system as (Ln, an, bn), (LAn, aAn, bAn), and (Lnc, anc, bnc), as defined in the present specification;

said step of specifying a uniform adjusting color is for calculating the (Lnc, anc, bnc) that maximizes the value J in the following formulas:

$J = (Lnc - LAn)^2 + (anc - aAn)^2 + (bnc - bAn)^2$

$H = bn/an$.

21. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim 19, wherein

when a color of the first image data stored in said specified memory means, an average color value of the second image data calculated in correspondence with the color of the first image data, and an adjusting color of the first image data are expressed in the L*a*b* color system as (Ln, an, bn), (LAn, aAn, bAn), and (Lnc, anc, bnc), as defined in the present specification;

said step of specifying a uniform adjusting color is for setting

anc = | an | , when aAn < 0; anc = – | an | ,when aAn > 0,

bnc = | bn | , when bAn < 0; bnc = – | bn |, when bAn > 0, and maximizing Lnc.

22. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim 14, wherein

said first image data is an image data that represents character images.

23. (Currently Amended) A computer-readable non-transitory storage device containing program product as claimed in claim 15, wherein said process further comprises the step of:

preparing an electronic file based on the image data synthesized at said step of synthesizing.

24. (Currently Amended) An image processing method performed by a computing device having a processor comprising ~~the steps of~~ the processor programmed to:

~~detecting~~ detect colors of first image data by each processing unit, said first image data including data of a plurality of foreground objects;

~~grouping~~ group all of the detected colors of the plurality of foreground objects in the first image data into groups, each group containing a grouping of approximately equal colors from the plurality of foreground objects;

~~detecting~~ detect colors of second image data that serves as the first image data's background by each processing unit, the second image data having a plurality of colors; ~~and~~

~~comparing~~ compare, for each group, a representative color that is determined from the approximately equal colors of the group, to all the colors of the second image data that are adjacent to the first image data of the group and specifying a single uniform adjusting color to be used for the group, that makes the first image data recognizable against all colors of the second image data that serve as the first image data's background;

store the colors of the first image data by each of the approximately equal colors into a specified memory means; and

store the colors of the second image data that serves as the first image data's background, said colors of which are correlated to each of the corresponding colors of the first image data that are stored in said specified memory means; wherein

said specifying a uniform adjusting color includes: calculating an average value of all the colors of the second image data and calculating an average value of all the colors in each group as the representative color, the average value of all the colors of the second image data being correlated to each of the representative colors of the first image data, and calculating said adjusting color for each of the representative colors of the first image data based on each of the colors of the first image data and the average color value of the second image data calculated in correspondence with each of the representative colors of the first image data.

25. (Currently Amended) An image processing method as claimed in claim 24, ~~further comprising the step of~~ wherein the processor is programmed to:

synthesize ~~synthesizing~~ the first image data converted into said adjusting color with said second image data.

26. (Original) An image processing method as claimed in claim 24, wherein said processing unit is a pixel.

27. (Currently Amended) An image processing device comprising:

a computing device having a processor, wherein the processor is programmed to function as:

a first color detector for detecting colors of first image data by each unit of first image data, said first image data including data of a plurality of foreground objects and grouping all of the detected colors of the plurality of foreground objects in the first image data into groups, each group containing a grouping of approximately equal colors from the plurality of foreground objects;

a second color detector for detecting colors of second image data that serves as the first image data's background by each unit of second image data, the second image data having a plurality of colors; and

a color adjusting circuit for comparing, for each group, a representative color that is determined from the approximately equal colors of the group, to all the colors of the second image data that are adjacent to the first image data of the group and specifying a single uniform adjusting color to be used for the group, that makes the first image data recognizable against all colors of the second image data that serve as the first image data's background;

wherein the computing device includes:

a first memory for storing the colors of the first image data by each of the approximately equal colors; and

a second memory for storing the colors of the second image data that serves as the first image data's background, said colors of which are correlated to each of the corresponding colors of the first image data that are stored in said first memory; wherein

said color adjusting circuit includes an average color value calculating circuit for calculating an average value of all the colors of the second image data and an average value of all the colors of each group as the representative color, the average value of all the colors of the second image data being correlated to each of the representative colors of the first image data, and an adjusting color calculating circuit for calculating said adjusting color for each of the colors of the first image data based on each of the representative colors of the first image data and the average color value of the second image data calculated in correspondence with each of the representative colors of the first image data.

28. (Currently Amended) An image processing device as claimed in claim 27, ~~further comprising :~~ wherein one processor is programmed to function as an image synthesizing circuit for synthesizing the first image data converted into said adjusting color with said second image data.

29. (Previously Presented) An image processing device as claimed in claim 27, wherein said units are pixels.

30. (Canceled)

31. (Currently Amended) An image processing device as claimed in claim ~~30~~ 27, ~~further comprising:~~ wherein one processor is programmed to function as a judging circuit for judging that colors of the first image data are approximately equal when a sum of squares of the differences of their coordinate values in a specified color system is less than a specified value.

32. (Currently Amended) An image processing device as claimed in claim ~~30~~ 27, wherein

said average color value calculating circuit calculates the average value of the coordinate values of the colors of the second image data in a specified color system.

33. (Previously Presented) An image processing device as claimed in claim 32, wherein when a color of the first image data stored in said first memory, an average color value of the second image data calculated in correspondence with the color of the first image data, and an adjusting color of the first image data are expressed in the L*a*b* color system as (Ln, an, bn), (LAn, aAn, bAn), and (Lnc, anc, bnc), as defined in the present specification;

said adjusting color calculating circuit calculates the (Lnc, anc, bnc) that maximizes the value J in the following formulas:

$J = (Lnc - LAn)^2 + (anc - aAn)^2 + (bnc - bAn)^2$

$H = bn/an.$

34. (Previously Presented) An image processing device as claimed in claim 32, wherein when a color of the first image data stored in said first memory, an average color value of the second image data calculated in correspondence with the color of the first image data, and an adjusting color of the first image data are expressed in the

L*a*b* color system as (Ln, an, bn), (LAn, aAn, bAn), and (Lnc, anc, bnc), as defined in the present specification;

said adjusting color calculating circuit sets

anc = | an | , when aAn < 0; anc = – | an | ,when aAn > 0,

bnc = | bn | , when bAn < 0; bnc = – | bn |, when bAn > 0, and maximizes Lnc.

35. (Previously Presented) An image processing device as claimed in claim 27, wherein said first image data is an image data that represents character images.

36. (Currently Amended) An image processing device as claimed in claim [30] 27, ~~further comprising~~ wherein the computing device includes a third memory for storing said second image data.

37. (Previously Presented) An image processing device as claimed in claim 1, wherein the grouping means individually compares each representative color to a value representing a combination of all of the colors of the second image data.

38. (Currently Amended) A computer-readable non-transitory storage device containing a program product as claimed in claim 14, wherein each representative color is individually compared to a value representing a combination of all of the colors of the second image data.

39. (Previously Presented) An image processing method as claimed in claim 24, wherein each representative color is individually compared to a value representing a combination of all of the colors of the second image data.

40. (Previously Presented) An image processing device as claimed in claim 27, wherein the color adjusting circuit individually compares each representative color to a value representing a combination of all of the colors of the second image data.